



The effect of government corruption on the efficiency of US commercial airports [☆]



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ABSTRACT

In this paper, we argue that the cost of providing public goods is affected by local government corruption because bureaucrats have no strong incentives to pursue mandated tasks under a corrupt environment. Commercial airports in the United States are chosen to demonstrate such impacts of corruption. We first develop a theory which predicts the impacts of corruption on productivity and variable input allocation of airports. We then test the predictions by estimating a stochastic variable cost frontier model which incorporates both technical and allocative efficiency of airports. The empirical evidence confirms the theoretical predictions by revealing the following: (1) airports are less productive in more corrupt environments; and (2) airports tend to use more contracting-out to replace in-house labor in more corrupt environments. The findings can be applied to the context of other public goods and have important policy implications for reforming governance structure of public good provision.

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1. Introduction

This paper revisits a classical problem in public finance and urban economics – the efficiency of public goods. We interpret the provision of public goods by local governments as the following sequential decisions. Given a budget constraint, a local government first decides the target levels of public services such as public schools, transportation, health care, and public utilities. Second, capital and labor inputs are employed by the local government to achieve the target levels. The research questions regarding the efficiency of public goods may refer to: (1) whether or not the levels of different public goods are over- or under-provided; and (2) whether or not the expenditures on capital and labor inputs are minimized in producing the target levels of public goods. While scholars have directed a lot of attention to the first question – under- or over-provision of public goods,¹ this paper concentrates on

the second issue – the cost of providing public goods. In particular, using commercial airports in the United States as an example, we investigate the effect of local government corruption on the cost of providing public goods.

Researchers have found that the cost of providing public goods is affected by factors including sources of funding (De Witte and Geys, 2011), competition and monitoring of voters (Grosskopf et al., 2001), centralized or decentralized public finance (Hoxby, 1999) and institutional arrangements (Oum et al., 2008). The effect of government corruption on the cost of providing public goods, however, has received limited attention. Corruption, which is defined as the misuse of public offices for private gains in Treisman (2000), affects economic development. Shleifer and Vishny (1993) point out that economic distortions caused by bribery, a major form of corruptions, are similar to those created by taxation. Moreover, corruption is illegal; therefore efforts to avoid detection and punishment make corruption more distorted and pernicious than taxation. Empirical findings support this argument. At the macro level, Mauro (1995, 1998) and Ades and Di Tella (1999) find a negative relationship between investment and corruption. At the micro level, Dal Bó and Rossi (2007) find that countries with higher corruption tend to have more inefficient electricity distribution firms. Empirical evidence in Fisman (2001), Svensson (2003), Clarke and Xu (2004), Di Tella and Schargrodsky (2003), Khwaja and Mian (2005), and Cai et al. (2009) show that corruption can divert firms' managerial efforts from productive activities to rent-seeking activities such as political connection building.

Motivated by the literature on the influence of corruption, in this paper we ask the question: Is the efficiency of local public

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¹ Under- or over-provision of local public goods is in general studied under the theory of fiscal federalism, which was formalized by Oats (1972). An excellent review of the theory can be found in Weingast (2009). The theory of fiscal federalism compares centralized and decentralized local public good provision. Institutional arrangement can also affect under- or over-provision of local public goods. Hoxby (2000) suggests that efficient spending decisions on local public goods could be achieved by private provision because of Tiebout sorting. Brueckner (1983) shows that efficient provision of public goods can be achieved by property-value maximizing local governments.

sectors affected by corruption in the political environment? Answers to this question contribute to both the literature on the efficiency of public goods and the literature on the influence of corruption. Our study of this research question is based on the empirical findings from both political science and economics on the relationship between the accountability of public-policy making and corruption. Studies in Heywood (1997), Adserá et al. (2003), Alt and Lassen (2003), and Lederman and Loayza (2005) have identified the negative correlation between the accountability of public-policy making and the level of corruption.² Voters are not well informed about the policy outcomes when the accountability of public-policy making is low. As a result, the benefits for bureaucrats to pursue mandated tasks, which include the cost of providing public-goods, are low in a corrupt environment. We therefore hypothesize that the cost of providing public good is affected by corruption because bureaucrats have no strong incentives to devote efforts on mandated tasks under a corrupt environment.

We use commercial airports in the United States as an example to verify the above hypothesis. Commercial airports in the United States are operated by local governments either directly as government branches such as the Department of Aviation, or indirectly via airport authorities. As summarized in Wilson (1989), the US government branches have the following stylized facts: limited financial incentives because of public ownership, limited managerial autonomy because of the source of funding, and multiple objectives.³ An airport authority is a not-for-profit public entity charged with the operation of an airport or a group of airports, and is in general financially self-sustaining.⁴ Business decisions of an airport authority are made by the management led by a CEO, whose conduct is monitored by a board of directors appointed by county and city governments.

Airport efficiency is important to the economic performance of certain region. When an airport is publicly owned, a higher efficiency of it implies a lower budget burden to the local government. Moreover, through reductions of flight delays and various charges on both aeronautical and non-aeronautical services such as parking and concessions, a well managed airport reduces travel costs and hence facilitates air travel. Air travel has a significant positive effect on regional economies by boosting growth in population, employment, tourism, and income as documented in Brueckner (2003), Green (2007) and Blonigen and Cristea (2012). Empirical findings in Oum et al. (2008) and Craig et al. (2012) indicate that airport authorities are, on average, more efficient than airports operated as local government branches (or city-owned airports). Such findings are consistent with the theoretical findings in Dewatripont et al. (1999a) on the efficiency gain from being more focused on management missions, and can justify the policy practice of creating independent airport authorities to reform airport governance structure in the United States.

Since institutional arrangements are important to airport efficiency, corruption can affect airport efficiency through affecting institutional choices of airports. What is the effect of corruption on airport institutional choices? There are no clear-cut answers in theory to this question. As pointed out by Shleifer

(1998), corruption has two conflicting consequences on government choices of “in-house provision” vs. “contracting out” of public services. On one hand, politicians can be in a better position to pursue political benefits when airports are kept in the hand of governments. On the other hand, contracting-out could be used by politicians to take private benefits (bribes) from providers. Reimer and Putnam (2009) show that the transfer of airport management from local governments to airport authorities in the United States can be attributed to various reasons including funding deficiency. In this paper, we focus on the channels via which corruption affects airport efficiency through affecting the decision-making of airports.

We first build a theoretical model to predict the impacts of corruption on the decision making of airports under the two institutional arrangements. We then test the theoretical predictions by using a unique data set consisting of 55 major airports from 30 states of the US during the period of 2001 to 2009. The corruption measure used in the empirical analysis is the state-level corruption index constructed by Glaeser and Saks (2006).⁵ We find that corruption lowers productivity and increases the ratio of non-labor variable input to labor of airports; such impacts are different for airports under different institutional arrangements. In particular, our findings suggest that the efficiency gain of transferring airport management from local governments to independent airport authorities can only be achieved in environments with low corruption. Findings from this paper have important policy implications to improve the efficiency of public goods.

2. The theory

We first make the following general assumption based on the cited references in the introduction, and then outline the models on the decision-making of airports under the two institutional arrangements. The impacts of corruption on the decision-making of airports are discussed based on the general assumption.

General assumption: The accountability of public policy outcomes is lower in a more corrupt environment. Because voters are not well informed about public policy outcomes, the benefits for bureaucrats to devote efforts on mandated tasks are less in a more corrupt environment. As a result, bureaucrats have less incentive to pursue mandated tasks in a more corrupt environment.

The decision-making of an airport authority is modeled by a principal-agent model, which integrates three strands of literature: the theory in political economy on the goals of politicians (Kemp, 1991 and Kodrzycki, 1994), the career concern model on the incentive of managers (Holmstrom, 1982), and the agency theory of the firm (Jensen and Meckling, 1976). The decision-making of a city-owned airport is modeled as a career concern model with multiple tasks, a practice adopted by Dewatripont et al. (1999a,b) to model the decision-making of the US government branches. The impacts of government corruption on the decision-making of the two types of airports are discussed on the basis of the general assumption.

2.1. Model setup

We assume that an airport is required to meet an output target which is exogenously determined by air transport needs of the city and the region. We use \bar{q} to denote the output target; as long as the actual output is not less than \bar{q} , the society cares only about the

² Explanations to the link between low accountability of public policy outcomes and high corruption include: 1. the politicians and bureaucrats are in a better position to pursue rent-seeking activities when the accountability of public policy outcomes is lower; and 2. in more corrupt environments, the politicians and bureaucrats are more likely to implement practices which reduce the accountability of public policy making in order to extract private benefits because the cost of doing so is less in more corrupt environments.

³ For example, missions stated on the website of Chicago Department of Aviation, which administers the two major airports in Chicago, include the efficiency of airports, economic development of the region, and job creation.

⁴ Daily operations of an airport authority are funded by the retained earnings of the airport.

⁵ The corruption rate measures the number of public officials who were convicted for corruption by the Federal Justice Department every year for every 100,000 population. The rate is constructed by dividing the total number of federal convictions of public officials for public corruption from 1976 to 2002 by average population in the state in the same period. The corruption rate varies substantially across the states.

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